Smile Survey 2000

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Contents

Executive Summary

With *Smile Survey 2000*, the Washington State Department of Health (DOH) takes its second look at the oral health status and treatment needs of children in Washington State. Both *Smile Survey 1994* and *Smile Survey 2000* support development of state policies and programs to reach the goal of ensuring that all of Washington's children receive the oral health care they need.

DOH focused *Smile Survey 2000* on four groups of children: infants and toddlers, low-income children attending preschool, American Indian/Alaska Native children attending preschools and elementary schools, and elementary school children statewide. DOH collected information on more than 3,500 children, ranging in age from 1 to 10 years, during January through March 2000.

To share what we learned in this report, we have organized the information collected in *Smile Survey 2000* in terms of seven key findings, and for each we present our data in terms of graphs and/or tables. Wherever possible, we compare data from *Smile Survey 2000* with the 1994 study and Washington data with national averages from the office of the U.S. Surgeon General and other sources.

The seven key findings from *Smile Survey 2000* are:

- Dental decay is a significant public health problem for children surveyed in Washington State. By third grade, more than half of children are affected.
- Rates of dental decay for some Washington children have increased since 1994. More children in *Smile Survey 2000* have a history of decay or fillings.
- Some infants and toddlers in *Smile Survey 2000* have more decay than do very young children nationwide. Rates of decay for 1 and 2 year-olds are substantially higher than for the United States as a whole.

- Poor children surveyed in Washington have proportionately more dental decay. Children from low-income families are also more likely than all Washington children to need treatment.
- Children of color surveyed in Washington have more dental decay. Non-white children and children who speak a language other than English at home are more likely to have dental disease.
- Poor children surveyed in Washington have difficulty accessing oral health care. A fourth of families who want care for their children report that they are not receiving it.
- More children surveyed in Washington have access to preventive sealants. Our children have made progress in this area since *Smile Survey 1994*. But children are less likely to receive the sealants if they come from low-income households, if they are Non-white and/or Hispanic, and if they speak a language other than English at home.

Next Steps

Smile Survey 2000 provides important clues to the reasons why some children in Washington have more decay than others. We know that about a fifth of children experience four-fifths of tooth decay in our state. We know that poor children of color who are recent immigrants—from non-English-speaking families—have more disease and find it more difficult to get dental treatment.

Most children are covered by some type of health insurance, either private or through the state-federal Medicaid program. But even when children have health insurance, they often have trouble finding a dentist. In this report, we show state Medicaid data that reveal particularly low utilization of Medicaid-financed dental services for children in several parts of Washington.

In some ways, we are doing a better job of providing essential oral health services to children in Washington. For example, our public health sealant programs and the promotion of dental sealants as a preventive practice are working.

In the groups of children we surveyed, it is clear that children have continued to get disease, and much of the disease remains untreated. We have not succeeded in providing adequate interventions in public health or private health practice that affect dental disease in these children. We have provided sealants, but this preventive procedure is not applied until a child is about 7 years old. We also must work to prevent decay in primary or baby teeth.

We now have evidence that children at ages 1 and 2 may have significantly decayed teeth. Many children in Head Start and the state Early Childhood Education Assistance Program (ECEAP) still need treatment. While we have

attempted to apply resources to these age groups, the programs are just beginning to catch on. Resources for early intervention have increased with the introduction of the Access to Baby and Child Dentistry (ABCD) Program and training of physicians and nurses to apply fluoride to infants' and toddlers' teeth.

We need to expand this work in all Washington counties. We also need adequate resources to continue the preventive activities provided through Washington's public health jurisdictions, including the federally supported Women, Infants, and Children (WIC) nutrition program, Medicaid expansions for low-income women and children, and child care programs.

The answers to effective policies to protect children's oral health lie in a few sound principles that are stated in the 2000 *Oral Health in America: A Report of the Surgeon General.*

- Change perceptions regarding oral health and disease so that oral health becomes an accepted component of general health.
- Build an effective health infrastructure that meets the oral health needs of all Americans and integrates oral health effectively into overall health.
- Remove known barriers between people and oral health services.
- Use public-private partnerships to improve the oral health of those who still suffer disproportionately from oral diseases.

Smile Survey 2000 demonstrates that we still face many barriers to improving the oral health of all children in Washington State. We are seeing more dental disease among children, and we have fewer dentists in the state than we need to provide essential preventive services. We need to mobilize resources, as well as both public and private oral health care providers, to reverse these trends.

Introduction

With *Smile Survey 2000*, the Washington State Department of Health takes its second look at the oral health status and treatment needs of children in Washington State.

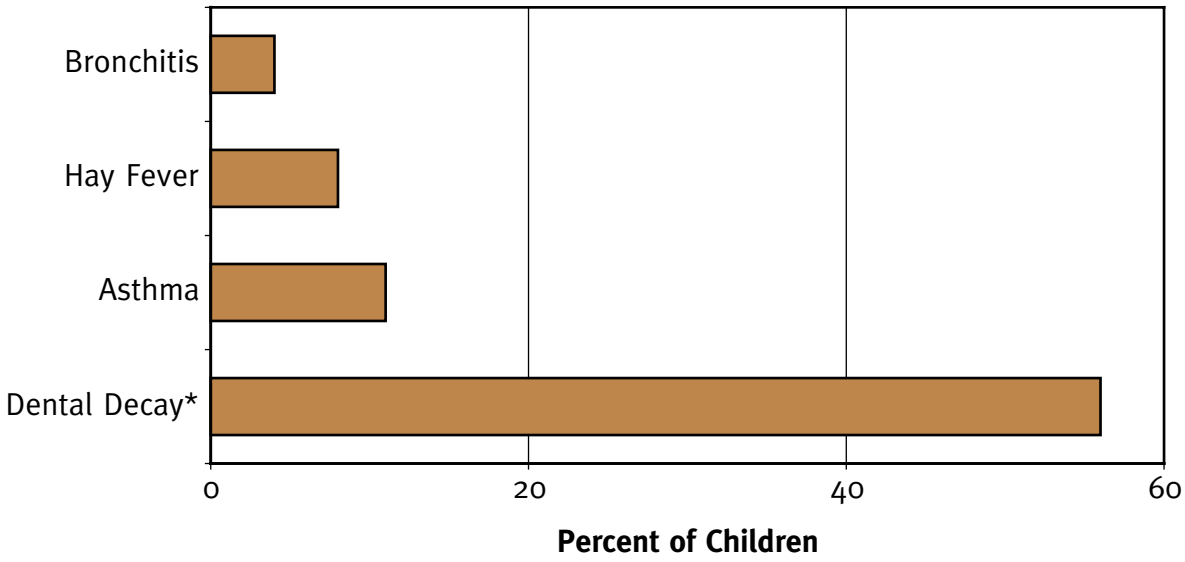
The first Smile Survey, which DOH conducted during 1993-94, found that nearly 20% of Washington's children surveyed needed dental fillings but had difficulty accessing treatment. These findings have been used to encourage state health policies that expand access to care, particularly for low-income children and those living in rural parts of the state where there are few dentists.

For *Smile Survey 2000*, the DOH collected data from more than 3,500 children, ranging in age from 1 to 10 years, during January through March 2000. This information, along with national data, help us understand how Washington is doing compared with other states in helping all children to receive the dental services that are necessary to protect their oral health. As with information collected for *Smile Survey 2000*, these data will be used to support program and policy development that more effectively meets the oral health needs of all of the children in our state. DOH will also compare the new data with national Healthy People 2010 objectives and to goals that have been established for Washington's public health system.

With these purposes in mind, we present information collected through *Smile Survey 2000* in terms of seven key findings about the children's oral health status and access to care. These findings are illustrated with a series of charts, followed by more detailed tables.

Smile Survey 2000 reveals that many low-income children in the state have difficulty accessing dental care. To expand on these findings, we also present information about dental services utilization and dentist caseloads during 2000, pro-

Dental Decay in Washington Children Surveyed Compared with Other Chronic Conditions, 2000



*Third grade children in *Smile Survey 2000* with a history of decay and/or fillings in primary and permanent teeth

Source: U.S. Centers for Disease Control and Prevention (5-17 year-olds)

vided by the Medical Assistance Administration, Washington State's Medicaid agency.

The findings of *Smile Survey 2000* are consistent with national data showing that dental decay is one of the most common childhood diseases. According to the Office of the U.S. Surgeon General (and as shown in the above chart), it has 14 times the prevalence of bronchitis, 7 times the prevalence of hay fever, and 5 times the prevalence of pediatric asthma. In addition, it is a preventable disease for children who receive oral health care.

The findings also point to some conditions that are improving, such as our children's better access to sealants that prevent decay on the chewing surfaces of teeth. But more often, the data from the 2000 survey reveal worsening oral health trends for thousands of Washington families. To remove the disparities in children's oral health that are so evident in the survey data, we will need programs for specific populations—particularly low-income children and those from selected racial and ethnic groups—that face the most significant barriers to care.

We hope that recognizing and understanding these trends will contribute to policies that will ensure all Washington children receive the oral health care they need.

Methods

For *Smile Survey 2000*, we collected information from four groups of children: infants and toddlers, low-income children attending preschool, elementary school children, and American Indian/Alaska Native children attending Head Start programs and elementary schools. We present detailed information on these children in the tables at the end of this report.

All of the Smile Survey screenings were conducted using gloves, a penlight, and a tongue blade. If necessary, a toothbrush or gauze swab was used to remove excess debris. Screeners used diagnostic criteria outlined in the Association of State and Territorial Dental Directors 1999 *Basic Screening Surveys: An Approach to Monitoring Community Oral Health.* All screeners attended a one-day training session.

Following is a summary of the sampling and screening methods used for each of the groups of children in *Smile Survey 2000*.

Infants and Toddlers

This portion of the Washington State Smile Survey was a collaborative effort with the Statewide Lead Poisoning Prevalence Survey, a birth certificate "follow-back" survey designed to estimate the prevalence of lead poisoning among 1 and 2

Number of Children in *Smile Survey 2000:*

1-2 year-olds	519
2-4 year-olds	254
3-5 year-olds	311
Second and third-graders	2,699
Indian Health Service Head Start	149
IHS second and third-graders	293

year-olds in Washington State. We selected census tracts randomly in two categories: a high-risk group of nine counties in central and eastern Washington with a large population of Hispanics and a low-risk group consisting of all other counties in the state.

We over-sampled birth certificates for Hispanic children and the children of farmworkers. The sample consisted of 900 birth certificates, 540 from the high-risk area and 360 from the rest of the state. Of this sample, a total of 554 children took part in the Lead Poisoning Prevalence Survey, with a mean age of 23.3 months, and 519 received an oral health screening.

Licensed practical nurses screened these children.

Early Start and Head Start Children

To screen children ages 2-4, we targeted Early Start programs and asked all programs in Washington to participate. Some of the programs are home-based rather than center-based, and for this reason, only 6 of the 10 Early Start programs in the state agreed to participate. We also screened children at Head Start centers affiliated with participating Early Start programs. Children were required to return a positive consent form before screening.

We screened a total of 410 children between the ages of 2-5 years. Of these, 254 were between 2-4 years, and 311 were 3-5 years old. Eight licensed dentists or dental hygienists conducted the screenings of these children.

Elementary School Children

We obtained an electronic list of all public elementary schools in Washington from the Office of Superintendent of Public Instruction. All schools with at least 25 children in second and/or third grade were included in the sampling frame. We then ordered eligible schools by percent of minority enrollment and randomly selected 55 elementary schools for participation in *Smile Survey 2000*. Seven of the schools refused to participate, resulting in 48 participating schools with an enrollment of 6,814 children in second and third grade. We screened only those children whose families returned a positive consent form.

We screened a total of 2,699 children in second and third grade, for a 40% response rate. The children ranged in age from 6-10 years with a mean of 8.0 years. About half of the children were female, 72% were white and non-Hispanic, and English was the primary language for 88% of the children. Of the 2,086 children whose families provided information on eligibility for free and reduced-price meals, 37% were eligible.

Elementary School Children Participating in Smile Survey 2000 *Compared with All Washington School Children*

	Students Participating in Smile Survey	Students in Schools Participating in Smile Survey	All Washington School Children
Number in second and third grade	2,699	6,814	156,369
Percent white non-Hispanic (n=2,628)	72.4	74.4	75.3
Percent eligible for the free and/or reduced-price meals program (n=2,086)	36.6	36.8	31.0

The children taking part in *Smile Survey 2000* were not representative of the state as a whole. Compared with state enrollment data, *Smile Survey 2000* over-sampled both minority children and low-income children.

Thirteen licensed dentists or dental hygienists completed all of the screenings for this group.

Indian Health Service Sample of Head Start and Elementary School Children

We screened 149 American Indian/Alaska Native children, ages 2-5, attending seven tribal Head Start programs. The parents of these children did not complete the access to care questionnaire. To measure oral health status of elementary school-age, American Indian/Alaska Native children, the Portland Area Indian Health Service collected oral health information at eight schools in Washington. The schools were selected to represent the three primary geographic areas of Washington: coastal Washington, Puget Sound, and eastern Washington. All children were screened.

Smile Survey 2000 *Key Findings*

#1: Dental decay is a significant public health problem for children in the Washington State Smile Survey.

By the third grade, nearly 6 of every 10 children surveyed suffer from tooth decay. *Smile Survey 2000* shows that decay experience increases sharply with age.

#2: Rates of dental decay for some populations of Washington children have increased since 1994.

Compared with children surveyed in 1994, a greater proportion of children is experiencing decay and needs treatment.

#3: Some of Washington's infants and toddlers have more decay than very young children nationwide.

The rates of decay for 1 and 2 year-olds in *Smile Survey 2000* are substantially higher than for the nation as a whole. More than a third of low-income preschool children surveyed need dental treatment.

#4: Poor children surveyed in Washington have more dental decay.

Children in *Smile Survey 2000* with low family incomes are more likely than all Washington children to have decay and need treatment.

#5: Children of color surveyed in Washington have more dental decay.

Non-white children and children in the survey who speak a language other than English at home are more likely to have decay than are other children in Washington.

#6: Poor children surveyed in Washington have difficulty accessing oral health care.

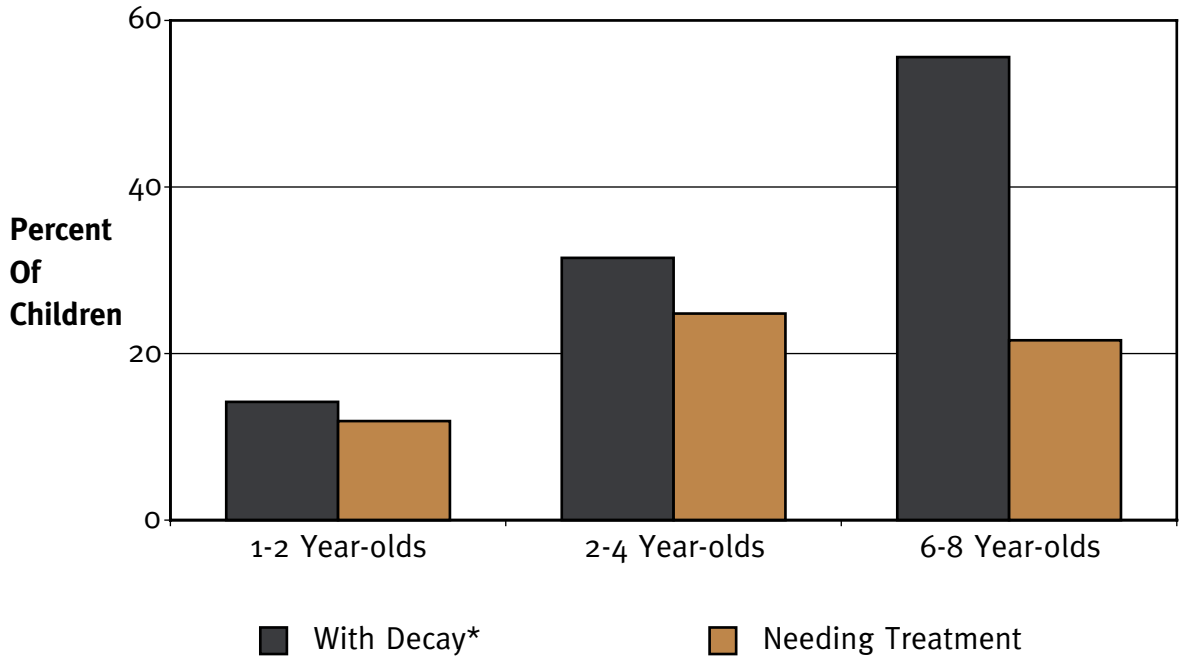
More than 80% of Washington children in *Smile Survey 2000* have dental insurance. Nonetheless, a fourth of children who want oral health care are not receiving it.

#7: More children surveyed in Washington have access to preventive dental sealants.

More Washington children surveyed are receiving sealants to protect their teeth, but low-income children and children of color in the survey are less likely to receive them.

Key Finding #1: Dental decay is a significant public health problem for children in the Washington State Smile Survey.

1—Oral Health Status of Children by Age
Smile Survey 2000

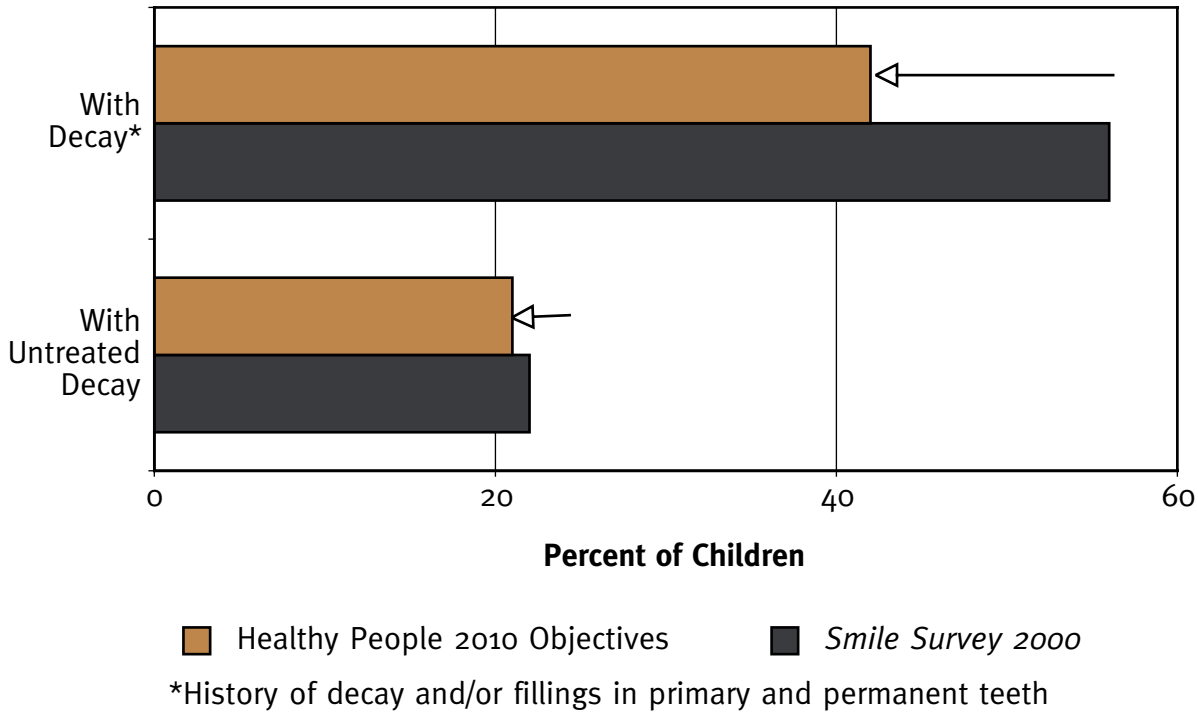


*History of decay and/or fillings in primary and permanent teeth

Smile Survey 2000 shows that dental decay experience increases with age. By the time Washington children are 6-8 years old, 55% have experienced decay or have fillings, compared with 14% of 1-2 year-olds. This suggests that young children are affected by this disease early and continue to experience decay at greater rates as they grow older. The U.S. Surgeon General warns in a report released in 2000 that, when decay in children is untreated and becomes a chronic condition later in life, it is associated with lung diseases, stroke, and premature and low birthweight births.

(See Tables 1, 3, and 8 on pages 32 and 35.)

2—Oral Health of 6-8 Year-olds Compared with Healthy People 2010 Objectives Smile Survey 2000



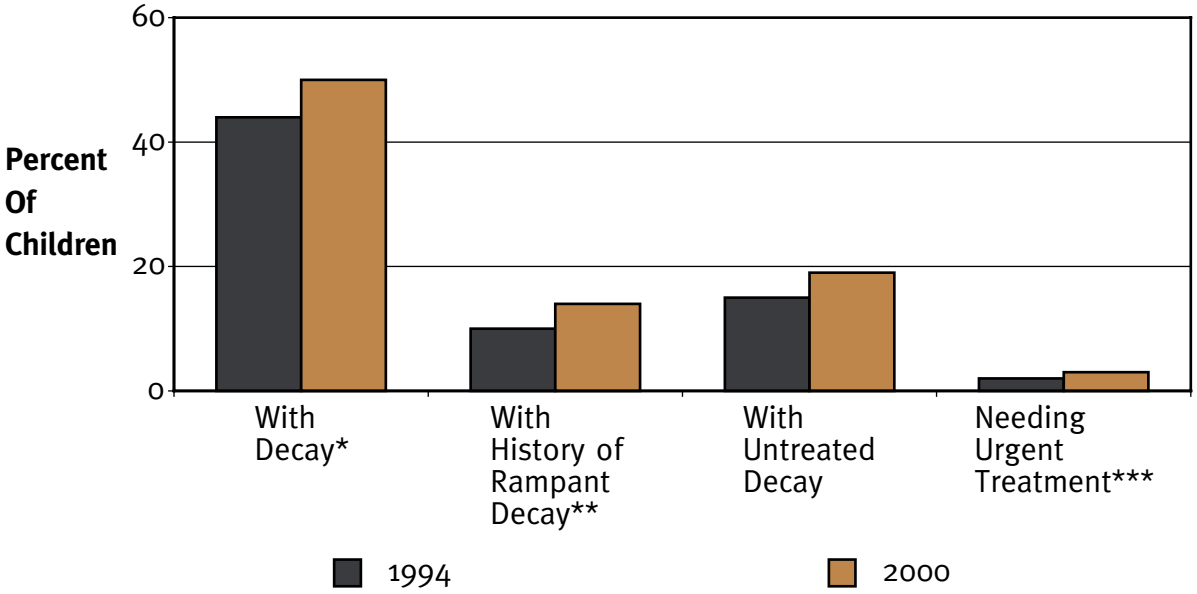
*History of decay and/or fillings in primary and permanent teeth

Smile Survey 2000 shows that a higher share of Washington's 6-8 year-old children surveyed are experiencing decay than the national Healthy People 2010 objectives. In Washington, 55% of 6-8 year-olds surveyed have decay or a history of decay, compared with a national objective of 42%. Washington comes close, however, to meeting the national standard for the percent of children with untreated decay: 22% of children in *Smile Survey 2000* compared with a 21% Healthy People 2010 goal.

(See Table 8 on page 35.)

Key Finding #2: Rates of dental decay for some populations of Washington children have increased since 1994.

3—Oral Health Status of Second Grade Children
White and Non-Hispanic Only
Smile Survey 1994 and Smile Survey 2000

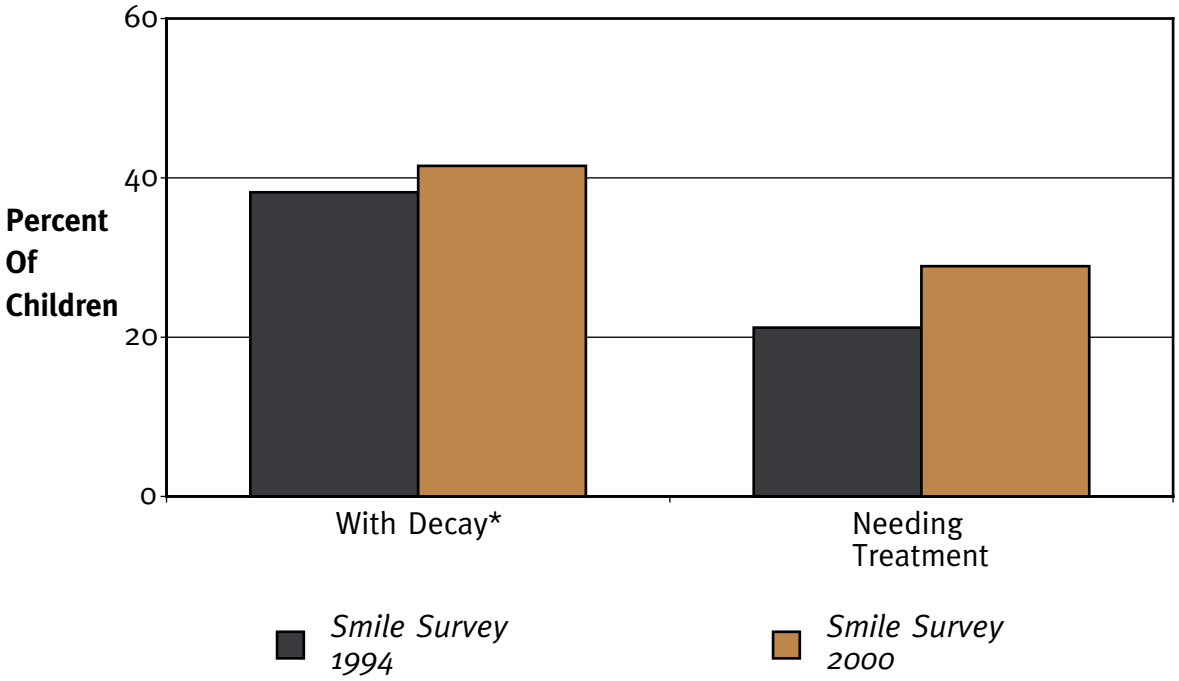


*History of decay and/or fillings in primary and permanent teeth
**Decay in seven or more teeth
***Pain or infection present

We compared rates of decay for second grade, white and non-Hispanic children who participated in the Smile Surveys conducted in 1994 and 2000. We found a significant increase in children with decay (43% to 50%), with a history of rampant decay (10% to 14%), and with untreated decay (15% to 19%). This comparison should be viewed with caution because of different sampling strategies across the two surveys. Nonetheless, it reveals a strong trend toward more decay—even among this relatively low-risk group of children.

(See Table 15 on page 40.)

4—Oral Health Status of Head Start Children, Ages 3-5
Smile Survey 1994 and Smile Survey 2000



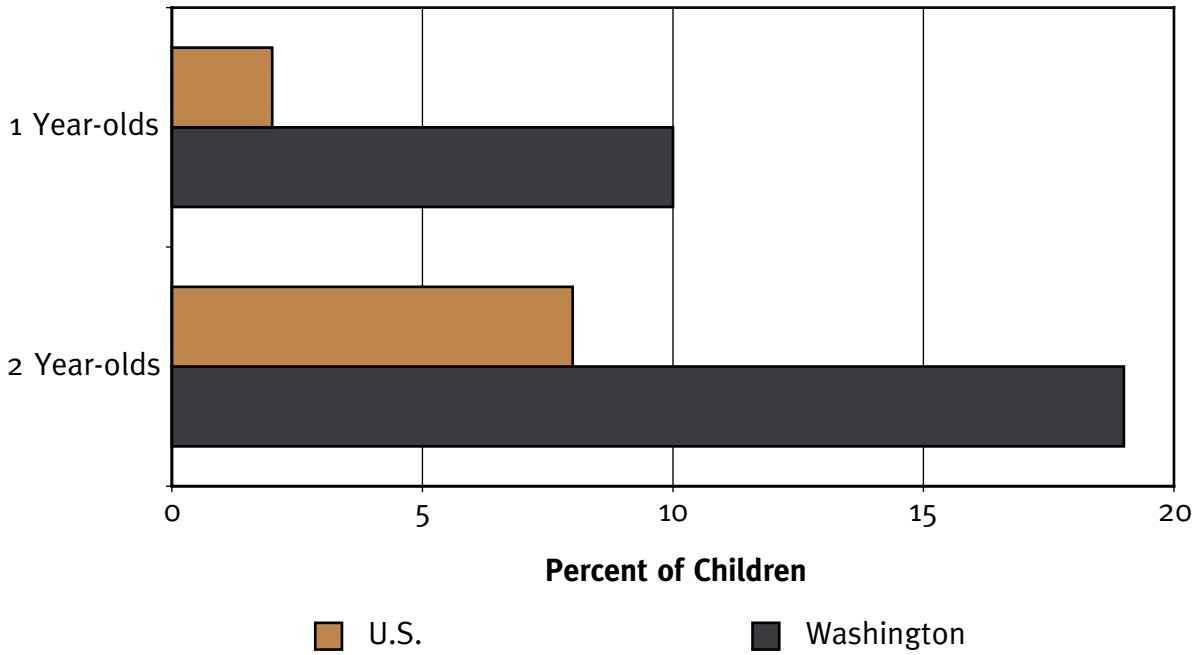
*History of decay and/or fillings in primary and permanent teeth

A comparison of decay and treatment needs of low-income 3-5 year-olds across the 1994 and 2000 Smile Surveys shows that more children surveyed in 2000 have decay (38% in 1994 compared with 41% in 2000). We found a greater increase between the two surveys in the share of preschoolers who need treatment (21% to 29%). The data confirm the trend of high rates of decay among very young children and reveal a worsening problem of young children needing—and not receiving—dental services.

(See Table 6 on page 34.)

Key Finding #3: Some of Washington's infants and toddlers have more decay than very young children nationwide.

5—1 and 2 Year-olds with Decay*, Smile Survey 2000 and Nationwide, 2000



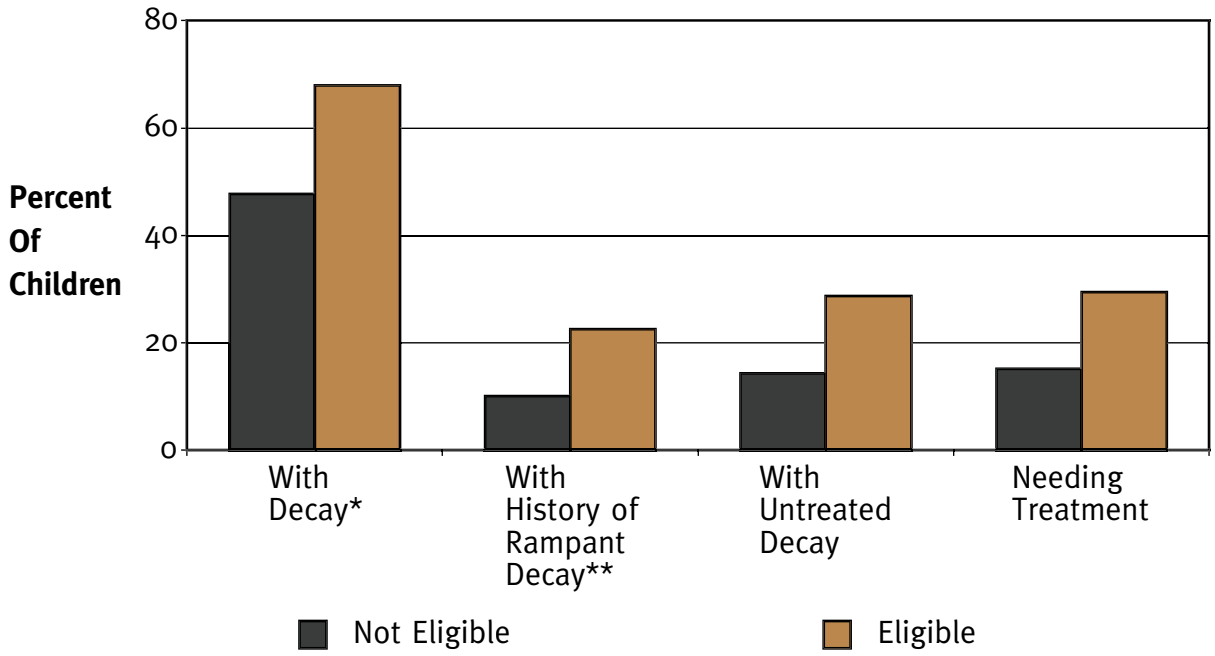
*History of decay and/or fillings in primary and permanent teeth
Source: National Health and Nutrition Examination Survey

The American Academy of Pediatric Dentistry advises that children should see a dentist by their first birthday to detect any early decay or decay-producing feeding practices. Rates of decay for Washington's 1 and 2 year-olds reinforce the need for infants and toddlers to receive a dental exam to protect their "baby" teeth and prevent worsening oral health. Washington's 1 year-olds are five times as likely, and its 2 year-olds are more than twice as likely, than children nationwide to have dental decay. Without x-rays, these rates are assumed to be underestimations of the need for care.

(See Table 1 on page 32.)

Key Finding #4: Poor children surveyed in Washington have more dental decay.

6—Oral Health of Second and Third Grade Children By Eligibility for Free and Reduced-price Meals, Smile Survey 2000



*History of decay and/or fillings in primary and permanent teeth

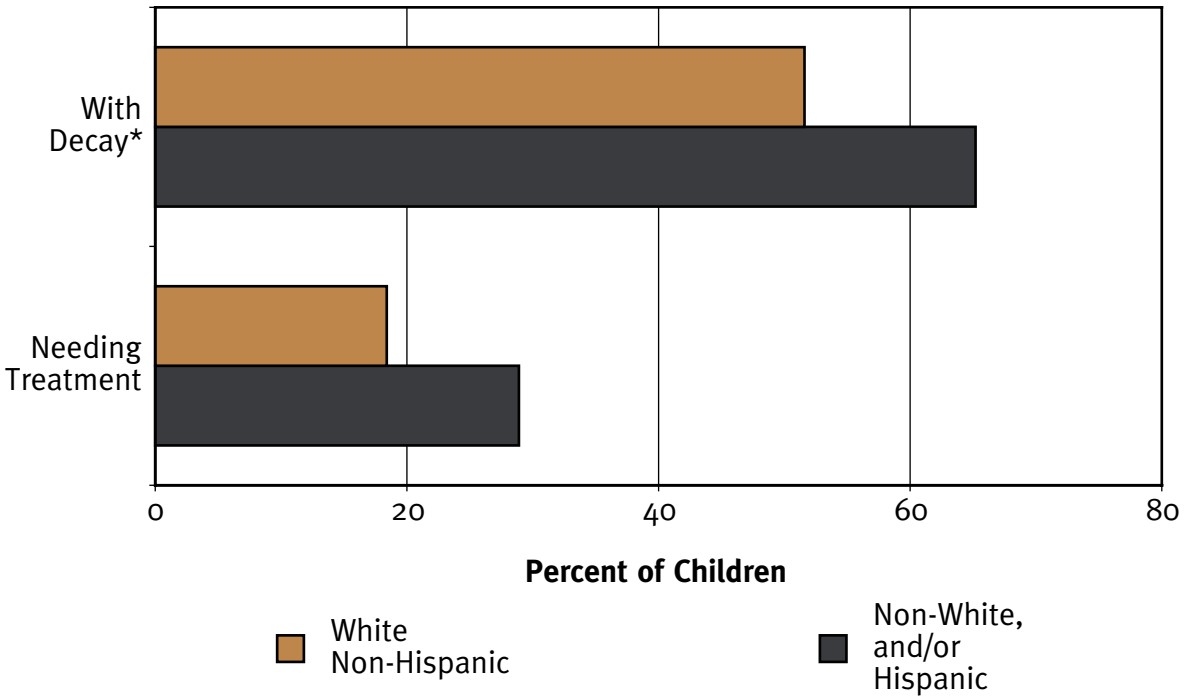
**Decay in seven or more teeth

Smile Survey children of all ages who come from low-income households are at higher risk of decay. When we stratified data by eligibility for free and/or reduced-price meal programs, which in 2000-2001 had an income ceiling of $31,500 for a family of four, we found significant differences in oral health status among second and third grade children. Those who are eligible for the program are more likely to have a history of decay (68% compared with 48% who are not eligible) and untreated decay (29% compared with 15%) and are more likely to need treatment (29% compared with 15%).

(See Table 10 on page 36.)

Key Finding #5: Children of color surveyed in Washington have more dental decay.

7—Oral Health Status of Second and Third Grade Children By Race and Ethnicity, Smile Survey 2000

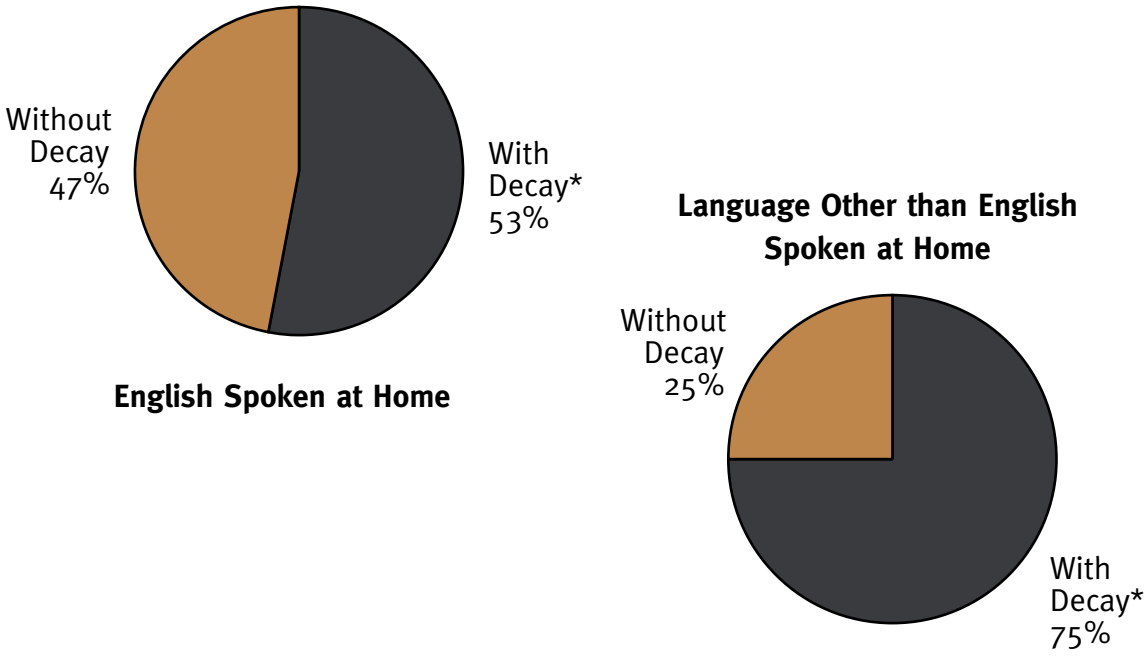


*History of decay and/or fillings in primary and permanent teeth

Health status data collected both in Washington and nationwide reveal significant disparities based on race and ethnicity. Such disparities are clearly evident in data on children's oral health status and access to care. In *Smile Survey 2000,* 52% of white, non-Hispanic children had decay, compared with 65% of non-white and/or Hispanic children. The disparity is also evident in children needing treatment: 18% of White, non-Hispanic children compared with 29% of non-white and/or Hispanic children.

(See Table 11 on page 37.)

8—Oral Health Status of Second and Third Grade Children By Language Spoken at Home, Smile Survey 2000

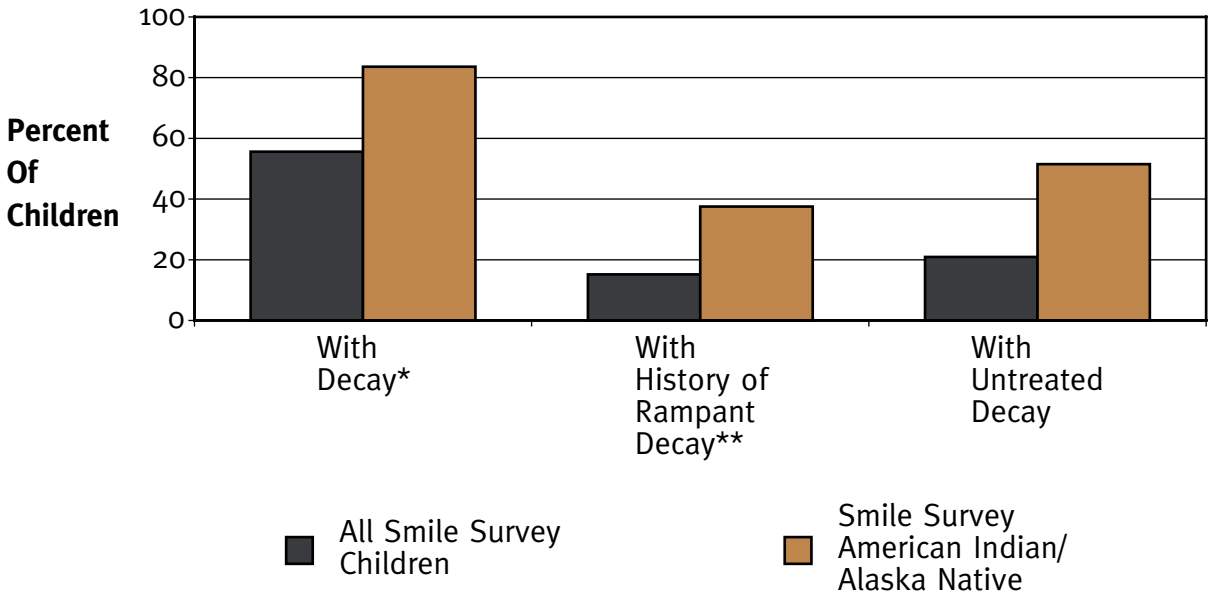


*History of decay and/or fillings in primary and permanent teeth

Smile Survey 2000 shows that another factor associated with more dental decay in children is the language they speak at home. In order to evaluate the oral health status of recent immigrants, we analyzed data stratified by English skills. As the charts above show, children are more likely to have decay by second and third grade if they speak a language other than English at home. They are also more likely to have a history of rampant decay (29% compared with 13%) and untreated decay (34% compared with 19%). Race becomes a less significant factor in oral health status once immigrant status is considered.

(See Table 12 on page 38.)

9—Oral Health Status of American Indian/Alaska Native Children Compared with All Children In Second and Third Grades, Smile Survey 2000



*History of decay and/or fillings in primary and permanent teeth

**Decay in seven or more teeth

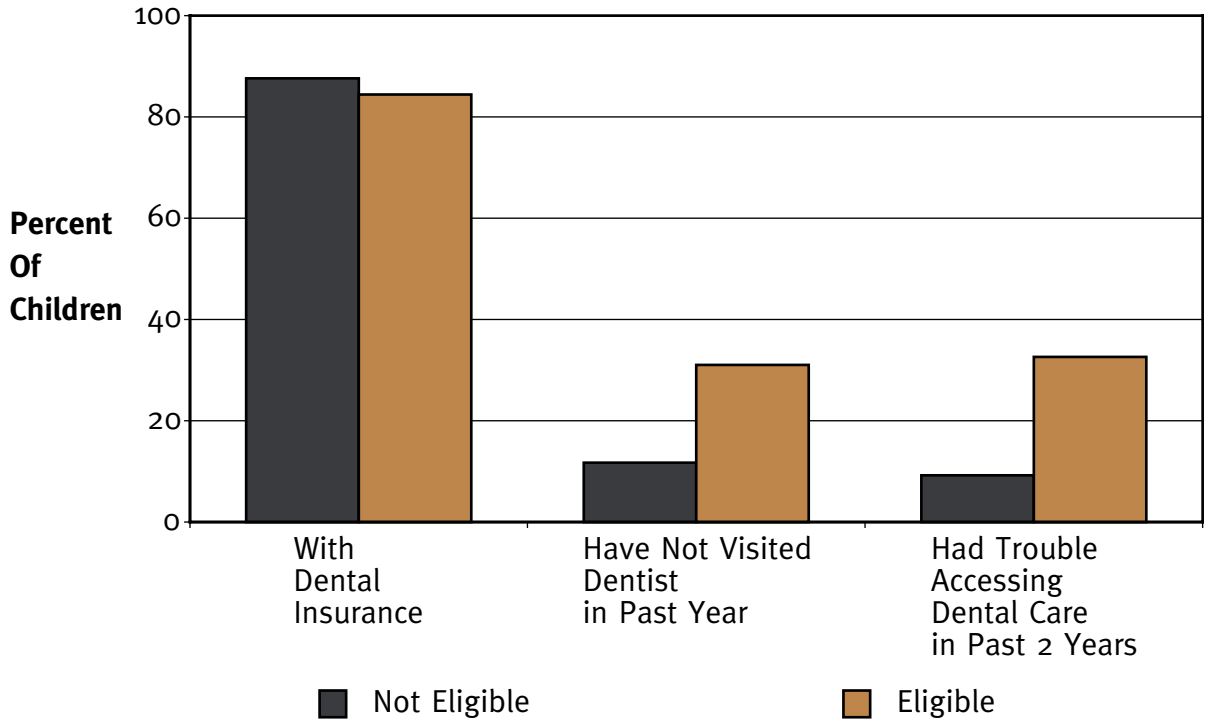
The Indian Health Service (IHS) screened American Indian/Alaska Native children as part of *Smile Survey 2000*. Compared with the survey's random sample of elementary school children, American Indian/Alaska Native children have poorer oral health: 84% have decay compared with 56% of all children surveyed, 37% compared with 15% have a history of rampant decay, and 51% compared with 21% have untreated decay. The findings suggest a problem with dental access that is confirmed by IHS data showing that American Indian/Alaska Native children are served by fewer dentists, are less likely to be served by fluoridated water systems, and have greater treatment needs than all children.*

(See Table 14 on page 39.)

*1999 Oral Health Survey of Native American Dental Patients: *Journal of Public Health Dentistry*, Volume 60, Supplement 1

Finding # 6: Poor children surveyed in Washington have difficulty accessing oral health care.

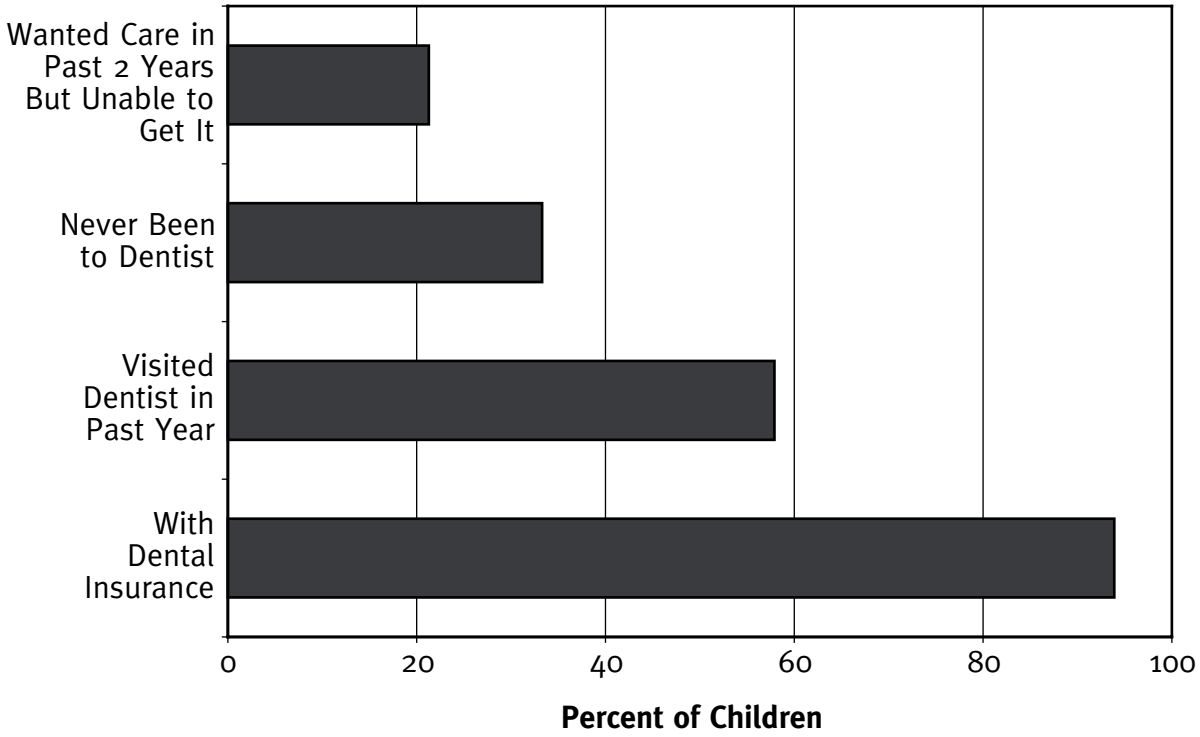
10—Access to Oral Health Care for Second and Third Grade Children By Eligibility for Free and Reduced-price Meals, Smile Survey 2000



Family income plays a complex role in children's access to care. More than 80% of children in *Smile Survey 2000* have dental insurance, regardless of family income. But low-income children are at greater risk than all children surveyed of not accessing care. Nearly a third of low-income elementary school children (30%) surveyed have not visited a dentist in the past year compared with 11% of all children. And 31% of those surveyed had trouble accessing dental care in the past two years compared with 8% of all children.

(See Table 10 on page 36.)

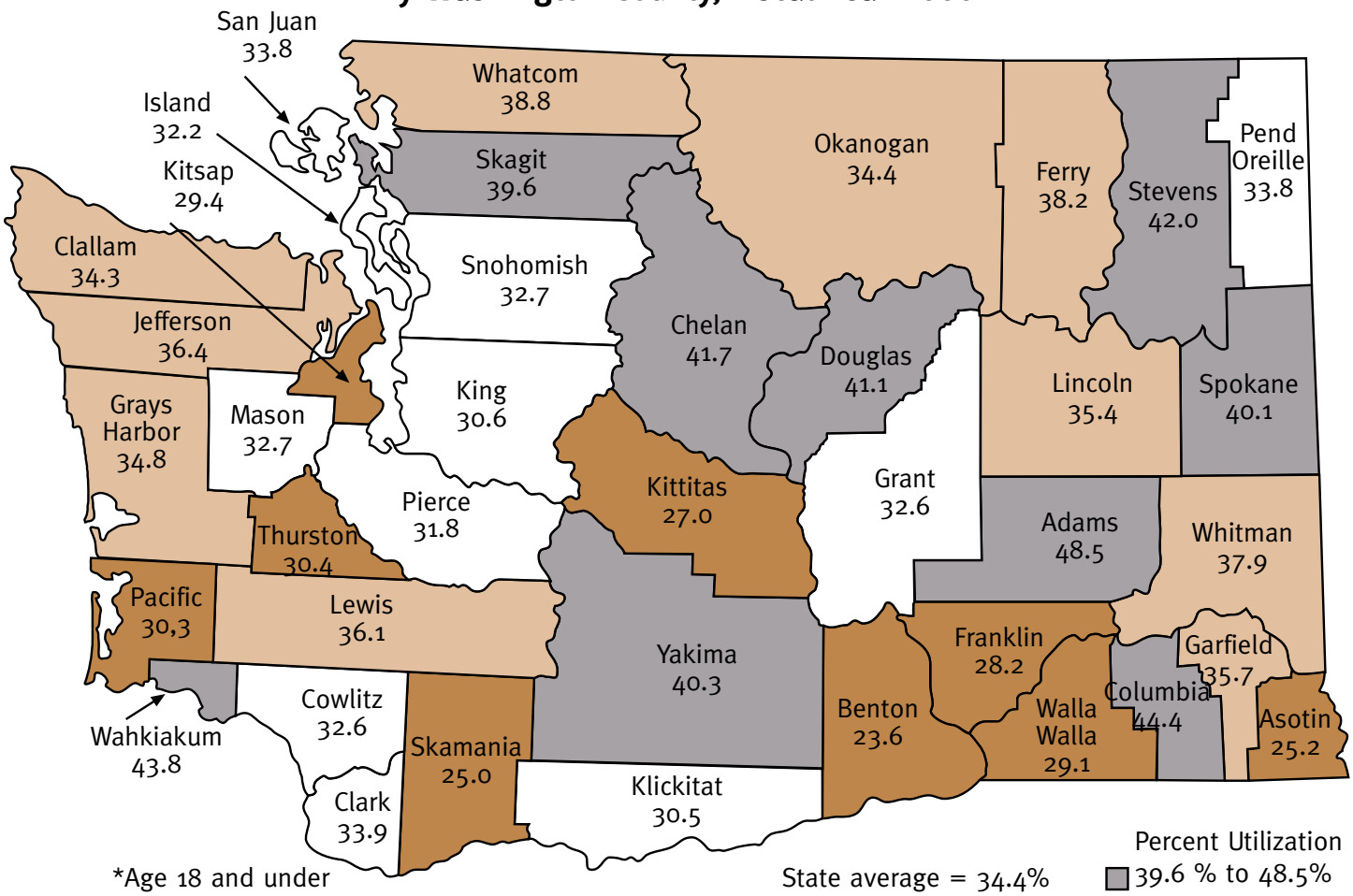
11—Access to Oral Health Care for Low-income 2-4 Year-olds
Smile Survey 2000



Responses to questions about preschoolers' oral health reveal that significant numbers have difficulty accessing care, despite the efforts of the state's public health system to strengthen community-based dental services and the fact that more than 90% have dental insurance (largely through Medicaid). Only 58% of 2-4 year-olds surveyed have visited a dentist in the past year, 34% have never been to a dentist, and the families of 21% wanted care in the past two years but have been unable to get it. The primary reason parents give for being unable to obtain care were "dentist did not accept Medicaid," "didn't know where to go," "fear, apprehension, pain, or dislike going," "could not afford it," and "no insurance."

(See Table 4 on page 33.)

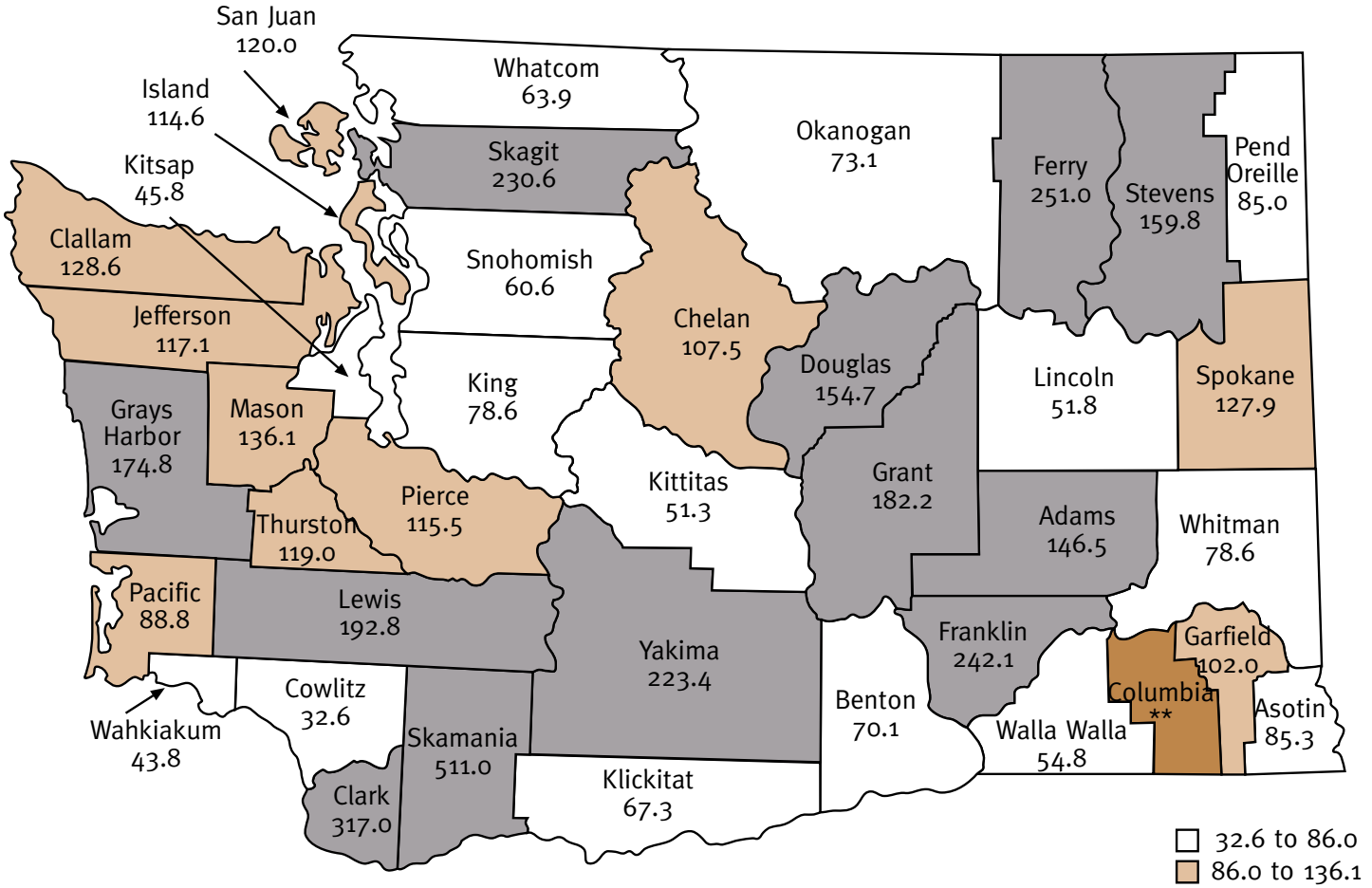
12—Percent of Medicaid-enrolled Children* Who Received Dental Services By Washington County, Fiscal Year 2000



Source: Medical Assistance Administration
(eligible = enrolled children)

Most of the low-income children in Washington are enrolled in Medicaid and, at least technically, have dental insurance. But program data show that insurance coverage of oral health care does not ensure that children will actually see a dentist and receive the treatment they need. Only about a third of children with Medicaid-financed dental insurance are receiving dental services. In 9 of Washington's 39 counties—Asotin, Benton, Franklin, Kitsap, Kittitas, Pacific, Skamania, Thurston, and Walla Walla—only 31% or less of Medicaid-enrolled children are accessing oral health care.

13—Average Caseloads per Dentist of Children* on Medicaid By Washington County, Fiscal Year 2000



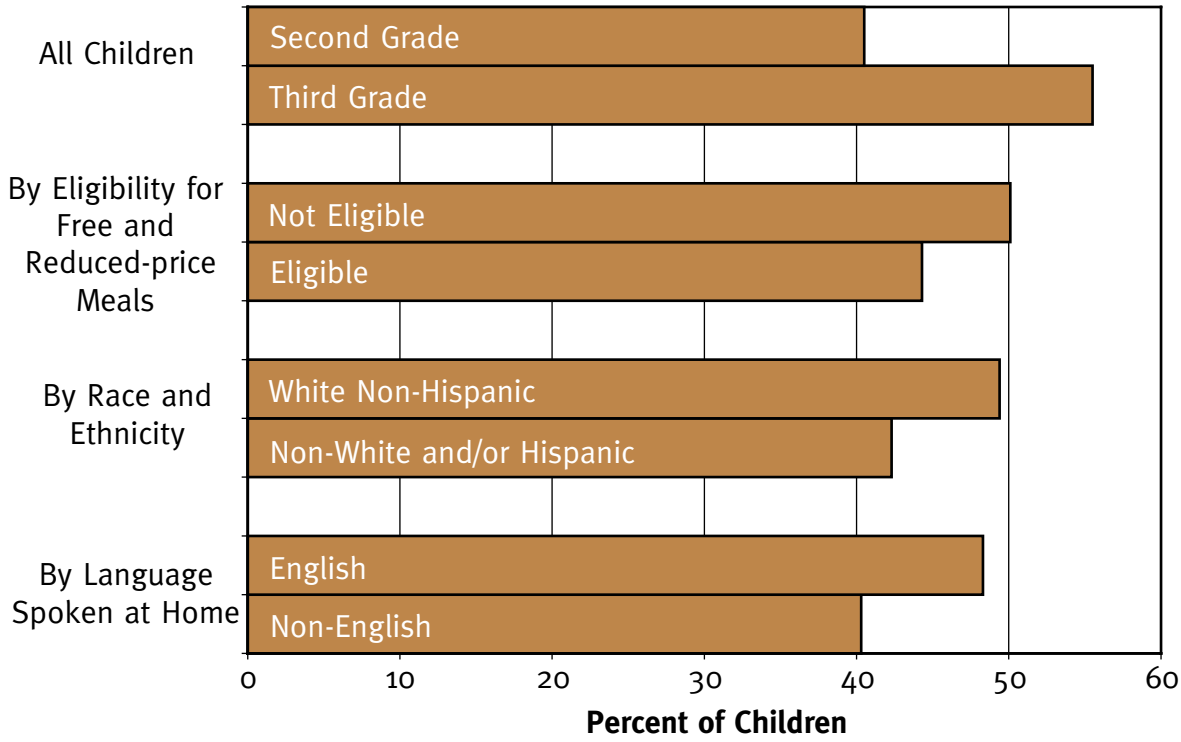
*18 and under
**Columbia County has no dentists.

Source: Medical Assistance Administration
(eligible = enrolled children)

Some counties in Washington have enough dentists. But in many parts of the state, the biggest challenge to Medicaid-enrolled children receiving oral health care is finding a dentist who will treat them. State data show that 20% of Washington's dentists treat 80% of the Medicaid clients receiving care. In 12 Washington counties, dentists carry average Medicaid caseloads of 146 children or more. These counties are Adams, Clark, Douglas, Ferry, Franklin, Grays Harbor, Grant, Lewis, Skagit, Skamania, Stevens, and Yakima.

Key Finding #7: More children surveyed in Washington have access to preventive dental sealants.

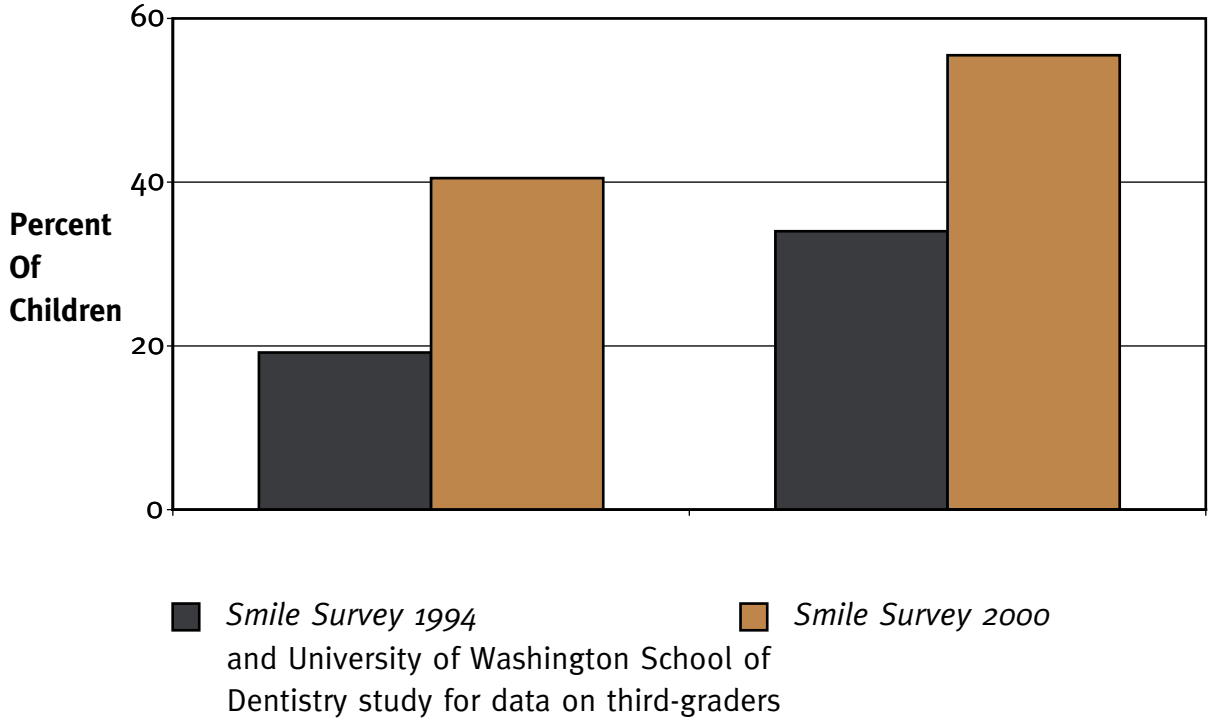
14—Access to Protective Sealants by Second and Third Grade Children Smile Survey 2000



Washington's Medicaid program covers the application of sealants, which protect the chewing surfaces of teeth. Of second grade children screened for *Smile Survey 2000*, 41% had sealants compared with a Healthy People 2010 goal of 50%. But third grade children in Washington exceeded the national goal. The chart above shows that second and third grade children surveyed are less likely to receive sealants if they are low-income (44% of children eligible for free and reduced-price meals compared with 50% who are not eligible), if they are non-white and/or Hispanic (42% compared with 49% of white and non-Hispanic children), and if they speak a language other than English at home (40% compared with 48% of children who speak English at home).

(See Tables 8 and 10 through 12 on pages 36-38.)

15— Second and Third Grade Children with Sealants Smile Survey 1994 and Smile Survey 2000



and University of Washington School of Dentistry study for data on third-graders

Since 1994, DOH has funded more school-based sealant programs, and it has implemented community-based education programs to inform dentists about the benefits of the preventive procedure. A comparison of *Smile Survey 1994* and *Smile Survey 2000* shows progress in the rate children are receiving sealants. From 1994 to 2000, the rate of second grade children who have received sealants more than doubled (19% to 41%), and the rate of third grade children with the sealants increased by nearly half, from 34% to 56%.

(See Table 13 on page 39.)

Data Tables

Table 1: Oral Health Status of Washington's Infants and Toddlers

	Number of Children for Whom Data are Available	1-2 Years of Age
Percent with decay experience	519	14.2
Percent with enamel hypoplasia	518	12.7
Percent with untreated decay	554	9.4
Percent needing treatment	508	11.9
Percent needing urgent treatment	508	0.2

Table 2: Information on Low-Income Preschool Children Screened in the Washington State Smile Survey

	2-4 Years of Age	3-5 Years of Age
Number of children screened	254	311
Percent white non-Hispanic	58.3	65.6
Percent that do not speak English at home	7.9	5.7
Percent born outside of the United States	0.9	1.9

Table 3: Oral Health Status of Washington's Low-Income Preschool Children Proportion (95% Confidence Interval)

	2-4 Years of Age	3-5 Years of Age
Percent with decay experience	31.5 (25.8-37.2)	41.5 (36.0-47.0)
Percent with rampant decay (or a history of)	9.8 (6.2-13.5)	16.4 (12.3-20.5)
Percent with Early Childhood Decay	16.5 (11.9-21.1)	21.5 (17.0-26.1)
Percent with precavitated decay	29.6 (24.0-35.3)	38.8 (33.4-44.3)
Percent with untreated decay	22.4 (17.3-27.6)	26.7 (21.8-31.6)
Percent needing treatment	24.8 (19.5-30.1)	28.9 (23.9-34.0)
Percent needing urgent treatment	4.7 (2.1-7.3)	5.5 (2.9-8.0)

Table 4: Access to Dental Care for Washington's Low-Income Preschool Children Proportion (95% Confidence Interval)

	2-4 Years	3-5 Years
Percent with dental insurance	93.9 (90.8-97.0)	90.5 (87.0-94.1)
Percent that visited dentist in last year	57.9 (51.6-64.2)	76.9 (71.8-81.9)
Percent that have never been to a dentist	34.2 (28.1-40.3)	13.6 (9.5-17.8)
Percent that wanted dental care in last 2 years but were unable to get it	21.3 (15.8-26.9)	21.2 (16.1-26.3)

Table 5: Oral Health Status and Access to Dental Care for Washington's Low-Income Preschool Children, by Race and Ethnic Origin 2-4 Year-Old Children Only

	Race and Ethnic Origin		
Oral Health Status Variable	**White Non-Hispanic N=137**	**Non-White and/or Hispanic N=98**	**p-value**
Percent with decay experience	29.2 (21.6-36.8)	31.6 (22.4-40.8)	0.688
Percent with rampant decay (or a history of)	8.7 (4.0-13.5)	8.2 (2.7-13.6)	0.871
Percent with untreated decay	19.7 (13.0-26.4)	24.5 (16.0-33.0)	0.380
Percent with Early Childhood Decay	16.8 (10.5-23.0)	13.3 (6.5-19.9)	0.460
Percent with precavitated lesions	25.5 (18.2-32.9)	30.6 (21.5-39.8)	0.392
Percent needing treatment	21.9 (15.0-28.8)	27.5 (18.7-36.4)	0.319
Percent that have not been to dentist in last year	36.5 (28.4-44.6)	50.0 (40.1-59.9)	0.039
Percent that had trouble accessing dental care in last 2 years	19.2 (12.3-26.1)	25.9 (16.4-35.5)	0.254

Table 6: The Oral Health Status of Washington's Low-Income Preschool Children in 1994 v. 2000, 3-5 Year-Old Children Only

	Smile Survey 1994 **N=1,070**	***Smile Survey 2000*** **N=311**
Percent white non-Hispanic	65.7	65.6
Percent with decay experience	38.3 (35.4-41.2)	41.5 (36.0-47.0)
Percent with rampant decay (or a history of)	11.2 (9.3-13.1)	16.4 (12.3-20.5)
Percent with untreated decay	20.7 (18.3-23.2)	26.7 (21.8-31.6)
Percent needing treatment	21.2 (18.7-23.6)	28.9 (23.9-34.0)
Percent needing urgent treatment	7.2 (5.6-8.7)	5.5 (2.9-8.0)

Table 7: Oral Health Status for Preschool Children Attending Non-Tribal Head Start and Tribal Head Start Programs

Oral Health Status Variable	**Non-Tribal Head Start N=311**	**Tribal Head Start Children N=149**
Percent with decay experience	41.5 (36.0-47.0)	75.2 (68.2-82.1)
Percent with untreated decay	26.7 (21.8-31.6)	55.4 (47.4-63.4)
Percent with rampant decay (or a history of)	16.4 (12.3-20.5)	33.6 (25.9-41.2)
Percent needing treatment	28.9 (23.9-34.0)	53.0 (45.0-61.1)
Percent with Early Childhood Decay	21.5 (17.0-26.1)	38.9 (31.1-46.8)
Percent with precavitated lesions	38.8 (33.4-44.3)	11.6 (6.4-16.7)

Table 8: Oral Health Status of Washington's Second and Third Grade Children Proportion (95% Confidence Interval)

	Second Grade N=1,401	Third Grade N=1,217	Both Grades N=2,699*
Percent with decay experience —primary and/or permanent teeth	54.7 (52.1-57.3)	57.5 (54.7-60.3)	55.6 (53.7-57.4)
Percent with decay experience —permanent teeth only	13.3 (11.5-15.1)	17.8 (15.7-20.0)	15.3 (14.0-16.8)
Percent with rampant decay (or a history of)	15.7 (13.8-17.6)	14.9 (12.9-16.9)	15.2 (13.8-16.5)
Percent with untreated decay	21.7 (19.5-23.9)	20.5 (18.3-22.8)	20.9 (19.4-22.5)
Percent needing treatment	22.7 (20.5-24.9)	20.6 (18.4-22.9)	21.6 (19.9-23.1)
Percent needing urgent treatment	4.0 (3.0-5.0)	3.0 (2.1-4.0)	3.5 (2.8-4.3)
Percent with sealants	40.5 (38.0-43.1)	55.5 (52.7-58.3)	47.2 (45.3-49.1)
Mean number of cavities in those children with decay (n=565)	2.6 range =1-12 SD=2.0, SE=0.12	2.3 range=1-11 SD=1.9, SE=0.12	2.4 range=1-12 SD=2.0, SE=0.08

*Grade was missing for 81 children

Table 9: Access to Dental Care for Washington's Second and Third Grade Children Proportion (95% Confidence Interval)

	Both Grades
Percent with dental insurance (n=2,874)*	85.3 (84.0-86.6)
Percent that visited dentist in last year (n=2,851)*	82.3 (80.9-83.7)
Percent that have never been to a dentist (n=2,851)*	3.4 (2.7-4.0)
Percent that wanted dental care in last 2 years but were unable to get it (n=2,756)*	17.5 (16.1-18.9)

* Number of children that provided information for each question

Table 10: Oral Health Status and Access to Dental Care for Second and Third Grade Children, Stratified by Eligibility for Free or Reduced-Price Meals Proportion (95% Confidence Interval)

	Eligible for the Free/ Reduced-Price Meal Program		
Oral Health Status Variable	**No N=1,322**	**Yes N=764**	**p-value**
Percent with decay experience —primary and/or permanent teeth	47.7 (45.0-50.4)	67.9 (64.6-71.2)	<0.001
Percent with decay experience — permanent teeth only	10.4 (8.8-12.1)	22.1 (19.2-25.1)	<0.001
Percent with rampant decay (or a history of)	10.1 (8.5-11.8)	22.5 (19.5-25.5)	<0.001
Percent with untreated decay	15.3 (14.4-16.2)	28.7 (25.5-31.9)	<0.001
Percent needing treatment	15.1 (13.2-17.1)	29.4 (26.2-32.7)	<0.001
Percent with sealants	50.1 (47.0-52.8)	44.3 (40.8-47.8)	0.011
Mean number of cavities in those children with decay (n=410)	2.05 SD=1.60 SE=0.12	2.70 SD=2.24 SE=0.15	<0.001
Percent with dental insurance	87.6 (85.9-89.2)	84.4 (81.8-86.9)	0.035
Percent that have not been to dentist in last year	10.9 (9.3-12.5)	30.4 (27.1-33.7)	<0.001
Percent that had trouble accessing dental care in last 2 years	8.2 (6.8-9.6)	31.5 (28.1-34.9)	<0.001
Percent white non-Hispanic	84.5 (82.6-86.3)	54.9 (51.5-58.3)	<0.001

Table 11: Oral Health Status and Access to Dental Care for Washington's Second and Third Grade Children, by Race and Ethnic Origin Proportion (95% Confidence Interval)

	Race and Ethnic Origin		
Oral Health Status Variable	**White Non-Hispanic N=1,901**	**Non-White and/or Hispanic N=726**	**p-value**
Percent with decay experience —primary and/or permanent teeth	51.6 (49.4-53.9)	65.4 (61.9-68.8)	<0.001
Percent with decay experience —permanent teeth only	13.9 (12.4-15.5)	18.6 (15.8-21.5)	0.003
Percent with rampant decay (or a history of)	13.7 (12.2-15.3)	17.9 (15.1-20.7)	0.007
Percent with untreated decay	17.6 (15.9-19.3)	29.1 (25.7-32.3)	<0.001
Percent needing treatment	18.4 (16.7-20.2)	29.2 (25.9-32.5)	<0.001
Percent with sealants	49.4 (47.2-51.7)	42.0 (38.4-45.6)	<0.001
Mean number of cavities in those children with decay (n=544)	2.28 SD=1.84 SE=0.10	2.67 SD=2.19 SE=0.15	0.036
Percent with dental insurance	86.1 (84.6-87.6)	82.5 (79.7-85.2)	0.019
Percent that have not been to dentist in last year	15.7 (14.1-17.2)	23.3 (20.2-26.4)	<0.001
Percent that had trouble accessing dental care in last 2 years	15.6 (14.1-17.2)	24.0 (20.7-27.3)	<0.001

Table 12: Oral Health Status and Access to Dental Care for Washington's Second and Third Grade Children, Stratified by Language Spoken at Home Proportion (95% Confidence Level)

	Language Spoken at Home		
Oral Health Status Variable	**English N=2,346**	**Non-English N=313**	**p-value**
Percent with decay experience —primary and/or permanent teeth	52.9 (50.9-54.9)	75.4 (70.6-80.2)	<0.001
Percent with decay experience —permanent teeth only	14.2 (12.7-15.6)	23.6 (18.9-28.3)	<0.001
Percent with rampant decay (or a history of)	13.1 (11.7-14.5)	29.4 (24.3-34.4)	<0.001
Percent with untreated decay	19.0 (17.5-20.6)	33.5 (28.3-38.8)	<0.001
Percent needing treatment	19.8 (18.2-21.4)	33.2 (28.0-38.4)	<0.001
Percent with sealants	48.3 (46.3-50.3)	40.3 (34.8-45.7)	0.007
Mean number of cavities in those children with decay (n=552)	2.28 SD=1.85 SE=0.09	2.96 SD=2.31 SE=0.22	0.004
Percent with dental insurance	85.9 (84.5-87.2)	81.4 (77.0-85.7)	0.035
Percent that have not been to dentist in last year	16.9 (15.5-18.4)	23.5 (18.7-28.4)	0.005
Percent that had trouble accessing dental care in last 2 years	17.1 (15.6-18.6)	22.5 (17.1-27.9)	0.038
Percent white non-Hispanic	80.7 (79.2-82.3)	15.2 (11.4-18.9)	<0.001

Table 13: The Oral Health Status of Washington's Second Grade Students in 1994 v. 2000 Proportion (95% Confidence Interval)

	Smile Survey 1994 **N=4,691**	***Smile Survey 2000*** **N=1,377**
Percent white non-Hispanic	79.0	72.4
Percent with decay experience —primary and permanent teeth	46.0 (44.5-47.4)	54.6 (52.2-57.4)
Percent with decay experience —permanent teeth only	6.2 (5.6-7.0)	13.0 (11.2-14.7)
Percent with rampant decay (or a history of)	10.9 (10.0-11.8)	15.8 (13.8-17.7)
Percent with untreated decay	16.9 (15.8-18.0)	21.6 (19.5-23.9)
Percent needing treatment	16.6 (15.5-17.7)	22.7 (20.5-24.9)
Percent needing urgent treatment	2.2 (1.8-2.6)	4.0 (3.0-5.1)
Percent with sealants	19.2 (18.0-20.3)	40.7 (38.0-43.2)

Table 14: Oral Health Status for Second and Third Grade Children Attending Smile Survey Elementary Schools and Elementary Schools in the Indian Health Service Smile Survey

Oral Health Status Variable	***Smile Survey 2000*** **N=2,699**	**IHS Smile Survey N=293**
Percent with decay experience	55.6 (53.7-57.4)	83.6 (79.3-87.8)
Percent with untreated decay	20.9 (19.4-22.5)	51.5 (45.8-57.3)
Percent with rampant decay (or a history of)	15.2 (13.9-16.7)	37.5 (32.0-43.1)
Percent needing treatment	21.5 (20.0-23.1)	51.0 (45.3-56.8)
Percent with sealants	47.2 (45.3-49.1)	43.8 (38.1-49.5)

Table 15: The Oral Health Status of Washington's Second Grade Students 1994 v. 2000 Proportion (95% Confidence Interval)

	White Non-Hispanic		Non-White and/or Hispanic	
	1994 N=3,662	**2000 N=969**	**1994 N=973**	**2000 N=375**
Percent with decay experience —primary and permanent teeth	43.5 (41.9-45.1)	50.2 (47.0-53.3)	54.8 (51.6-57.9)	65.9 (61.1-70.7)
Percent with decay experience —permanent teeth only	6.6 (5.8-7.4)	12.2 (10.1-14.2)	5.0 (3.7-6.4)	15.5 (11.8-19.1)
Percent with rampant decay	9.8 (8.9-10.8)	14.3 (12.1-16.6)	15.0 (12.8-17.2)	19.2 (15.2-23.2)
Percent with untreated decay	14.9 (13.7-16.0)	18.6 (16.1-21.0)	24,5 (21.7-27.2)	29.1 (24.5-33.7)
Percent needing treatment	14.6 (13.5-15.8)	20.0 (17.5-22.5)	23.8 (21.2-26.5)	29.1 (24.5-33.7)
Percent needing urgent treatment	1.9 (1.5-2.4)	3.1 (0.6-4.2)	3.3 (2.2-4.4)	6.7 (4.1-9.2)
Percent with sealants	20.6 (19.2-21.9)	42.1 (39.0-45.2)	14.1 (11.9-16.3)	38.1 (33.2-43.1)